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Performance Evaluation of Apprentice Weather Observers

Graduates of ATC Course ABR25231

by Earl F. Pruitt

APGC Technical Documentary Report No. APMC-TDR-63-26

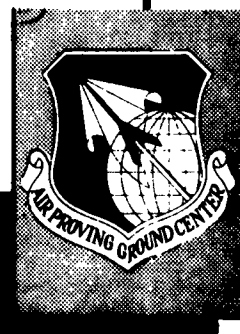
APRIL 1963 • APMC Project 0034Q-34

ATC PROJECT OFFICE

AIR PROVING GROUND CENTER

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FOREWORD

This evaluation, APGC Project 0034Q-34, was established in accordance with paragraph 3c of AFR 50-10. Detachment 10, 4th Weather Group, Eglin Air Force Base, Florida, was used as the test site. The evaluation was started 17 December 1962 and was completed 8 March 1963.

The following personnel were responsible for the conduct of the evaluation and the preparation of this report.

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Catalog cards may be found in the back of this document.

ABSTRACT

This evaluation was conducted to determine the ability of apprentice weather observers graduated from ATC Course ABR25231 to perform the duties of their specialty.

Apprentices graduated from this course are well prepared to meet the requirements of the Job Training Standard and most of the job requirements.

The recommendations include that instructors place more emphasis on the requirement for accuracy in the use of equipment and in taking readings and plotting weather data, and that during Block IV of the course (a period devoted to practical exercises in the operation of a weather station) more assignments be made which will require apprentices to research Air Weather Service manuals and publications.

The evaluation indicated that the course would be more closely aligned with the job requirements if the course levels established in the Job Training Standard for the following tasks were increased: (a) observes, records, and encodes storms using radar observations; (b) uses AFCSM 105-2 series; and (c) uses AWSM 105-2 series.

As a result of indications of excessive or unproductive training, an investigation was recommended to determine the feasibility of reducing the course in the following areas: (a) practical exercises devoted to plotting weather data; (b) operator familiarization of the AN/CPS-9 radar; and (c) mathematical computations of sea-level pressure, altimeter setting, dew point and relative humidity.

PUBLICATION REVIEW

This technical documentary report has been reviewed and is approved.



A. T. CULBERTSON
Brigadier General, USAF
Vice Commander

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SECTION 1 - INTRODUCTION

This evaluation was conducted under a program established by the United States Air Force to determine the ability of technical personnel trained by the Air Training Command to fulfill the requirements of their specialty. The subjects of this evaluation were apprentice weather observers who had been trained in Course No. ABR25231 at Chanute AFB, Illinois.

Specific objectives of this evaluation were to:

1. Determine the ability of apprentices graduated from this course to perform the duties of their specialty.
2. Obtain information that will assist in the preparation of better qualified weather observers and in promoting the effective use of their capabilities.

SECTION 2 - DESCRIPTION

COURSE

Air Training Command Course No. ABR25231 is of 18 weeks duration. It includes academic instruction in the following major subjects for the number of hours indicated.

<u>Subject</u>	<u>Hours</u>
Surface Weather Observations	182
Plotting Weather Maps and Charts	126
Weather Equipment Operation and Familiarization	82
Weather Station Operation	120

APPRENTICES

Typical apprentices graduating from this course are approximately

19 years old and have had about seven months of military service. The military service consisted entirely of basic training and the technical training provided by this course. An ACB or AQE General Aptitude Cluster of 50 or above is mandatory for entrance into the course and provides the basis for selecting apprentices.

Upon completion of this course, the apprentices should be capable of performing the duties of weather observers as defined in AFM 35-1 (Appendix I) at the 3-skill level indicated in the Job Training Standard (Appendix II). They should also be capable of progression to the 5-skill level of their specialty without additional formal training.

SECTION 3 - EVALUATION PROCEDURES

Ten apprentices selected to be representative of the course product were assigned in a pipeline status to Detachment 10, 4th Weather Group, Eglin Air Force Base. The assignment was for 12 weeks. The evaluation was conducted by grading the actual work performance of the apprentices as they performed the duties required of their specialty during this initial assignment. Subsequent investigations were made to determine reasons for performance inadequacies.

At the start of the evaluation, the apprentices were informed of the purpose and usage planned for the information which was to be derived. This was done to eliminate any uncertainty that might develop and to enlist their cooperation in obtaining the desired information.

During the evaluation no special situations were created. Apprentices were assigned only the duties that normally occurred and that were the responsibility of their specialty. This procedure permitted identification of the duties performed in the specialty as compared to those outlined in the Job Description and the Job Training Standard (JTS).

Supervisors were instructed to assume that the apprentices understood the tasks assigned until their performance indicated otherwise. When correction or additional instruction was required, the nature and extent of the instructions were recorded along with performance ratings. Annotations also were made concerning elements of instruction which the course did not provide. Two ratings were given for each task assigned. One rating indicated the apprentices' performance knowledge using a scale similar to that of the JTS. The other showed the

comparative time required to perform the task using the time required by a qualified 5-skill-level worker as the standard of comparison. This rating system permitted distinction between apprentices who understood the job but required practice and those who lacked sufficient knowledge to perform the work properly.

At the end of the evaluation period, critiques were held with supervisors and apprentices to analyze and discuss the data developed.

SECTION 4 - RESULTS AND DISCUSSION

CLASS STANDING

The apprentices selected for the evaluation were from two classes. One class had 9 graduates and the other had 19 graduates. The average of the class standings of those selected from the class with 9 graduates was slightly higher than the class average, and the average of the class standings of those from the class with 19 graduates was slightly lower than the class average. This indicated that the group as a whole was approximately the average output of the course.

JOB ASSIGNMENTS AS RELATED TO THE JOB DESCRIPTION AND THE JTS

The Eglin AFB Weather Station has requirements for upper air observations as well as surface observations. As a result, assignments made to apprentices, although possibly not representative in scope of those made to the average apprentice, did confirm the validity of the Job Description and tasks listed in the JTS.

Each apprentice had numerous assignments to observe weather elements and to record, plot, and summarize weather information. In performing the tasks, they operated teletypes, electrowriter, and facsimile machines, the AN/TMQ-11 temperature-humidity measuring set, AN/GMQ-13 cloud height measuring set, AN/GMQ-10B transmissometer, AN/GMQ-11 wind measuring set, R02 wind recorder, AN/CPS-9 storm detection radar, and various barometers, anemometers, thermometers, etc.

APPRENTICE PERFORMANCE

WEATHER EQUIPMENT OPERATION. When first assigned the tasks of operating the various pieces of equipment each of the apprentices evidenced a lack of confidence in his knowledge or ability and required additional instruction. The assistance required covered many areas. Definite patterns, however, were indicated in only a comparatively few areas and are discussed below.

Facsimile Machine. Each of the apprentices required detailed instruction in the operation and maintenance of the facsimile machines.

AN/CPS-9 Electronic Storm Detection Equipment. Each of the apprentices required considerable additional instruction in the operation of the AN/CPS-9 and in coding the presentations through the first eight weeks of their assignments. Two apprentices operated it at a competent level during the ninth week. When first assigned, none of the apprentices acknowledged having ever seen an AN/CPS-9 operate or of having observed a storm on a plan position indicator (PPI) scope. They had seen the equipment but stated it was undergoing repairs during the time they were in school.

According to the apprentices, an excessive amount of time was devoted to the AN/CPS-9 for the amount of usable knowledge they obtained. Both the apprentices and the supervisors suggested that the time spent on the electronics of the equipment was excessive and that much of the time spent on interpreting and coding the scope presentations could be eliminated unless more practical and operable training aids were used. Apprentices stated that a considerable part of the time spent in scope interpretation and coding was devoted to measurements, using a scale on paper handouts. As this is actually done by setting the strobe on the PPI scope, they felt that coding could have been taught more adequately and would have come nearer to satisfying their requirement if some simple film clips of an operating AN/CPS-9 had been used. Supervisors stated that the training in this area did not produce graduates at the "1b" level.

Supervisors further stated that due to the increase in the use of radar equipment by the Air Weather Service, a JTS course level of "2b" should be established for coding storms for radar observations. Supervisors recognized the problems in maintaining a radar while it was being used by students and of being able to obtain a storm picture on an operational scope during specific classroom periods. It was suggested, therefore, that training aids depicting actual scope presentations be developed and used for teaching interpretation and coding and that operator familiarization be eliminated as a course training requirement.

Errors in Reading Charts and Gauges. Although the apprentices demonstrated at least a basic knowledge in reading charts and gauges, they required close supervision because they made so many errors. All were performing satisfactorily by the fourth week. Supervisors stated that there appeared to be a general lack of appreciation for accuracy by the apprentices. In discussions of this with apprentices, they stated that accuracy was stressed in the classroom, and the need for accuracy was generally recognized; however, different readings by individual students during practical exercises were acceptable to instructors. Apprentices felt that they had been overly impressed with the concept that the individual observer's readings were always considered correct, and as errors made in readings during training were not immediately and emphatically corrected by instructors, poor habits had probably been formed.

Operational Checks. During the first three weeks it was necessary for supervisors to remind apprentices often to make operational checks of the equipment they were using. Three of five apprentices, when first assigned the task of making operational checks of the AN/TMQ-11, required considerable additional instruction. After the fourth week apprentices began to habitually check their equipment for operational errors.

WEATHER OBSERVATIONS. Surface Observations. By the end of the fourth week, apprentices demonstrated a satisfactory basic knowledge of most of the assigned tasks. Additional instruction required during that time covered a variety of subjects, and with the following exceptions no patterns indicating course deficiencies developed.

Sky Conditions and Cloud Forms: Four of eight apprentices, when first assigned the tasks, required assistance in identifying cloud types and changes in sky conditions. Supervisors suggested that more practical exercises in estimating sky conditions, especially cloud forms, heights, and coverage, were desirable.

Precipitation: Four of seven apprentices required one-time assistance in determining the intensity of precipitation.

Preparing Data for Transmission: Each apprentice required considerable additional instruction in the format, spacing, etc., used in preparing data for transmission. During the critique, it was found that

a new weather communications network (COMET), with new criteria for the preparation of weather data for transmission, was established in October 1962. The criteria differed from that taught in the course. By the seventh week of the evaluation, each of the apprentices was performing at a competent level.

Mathematical Computations: Supervisors and apprentices questioned the amount of time spent in the course in learning to compute mathematically sea-level pressure, altimeter setting, dew point, and relative humidity. They thought that tables and graphs prepared at weather stations or pressure reduction computers were used universally and that the preparation and use of these aids could be taught on the job when required. Supervisors suggested that this requirement be re-evaluated.

Upper Air Observations. During the last three weeks of the evaluation, each apprentice had numerous assignments involving rawinsonde and pilot balloon observations. They demonstrated an introductory knowledge of the operations when first assigned, and by the end of the evaluation approximately 50% of them were performing the various tasks at the "2b" level. Supervisors agreed with the levels of training established in the JTS and the course.

Decode and Plot Weather Data. Performance reports indicated overtraining in this area. Six of 10 apprentices assigned the tasks of decoding synoptic codes and plotting for ship and land stations performed them at the "3" level on their first assignments. The other four performed at the "2" level. In plotting constant pressure and winds aloft charts, each of four apprentices assigned the tasks performed at or above the "2" level on the first assignments. Six of 10 apprentices plotted thermodynamic diagrams at the "3" level and four at the "2" level on their first assignments. All of the apprentices plotted at the "3" level on their second assignments.

The syllabus reveals that approximately 80 hours of Block II plus a number of hours of Block IV are devoted to practical exercises in decoding and plotting weather data. It was indicated that Block II of the course could be shortened by approximately 30 hours.

Additional instruction provided by supervisors covered various areas, but the only pattern of apprentice deficiency indicated was that of carelessness. Supervisors were concerned during the first six weeks with the number of errors involving omission of information, known by the apprentices to be required, and with the general untidiness of the maps and charts they produced. The apprentices attributed the tendency toward carelessness to the failure of instructors to point out

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specific deficiencies in plots made during practical exercises and their apparent emphasis on quantity and timeliness to the detriment of quality. Supervisors suggested that more emphasis should be placed on the requirement for quality during course training and that speed could be developed on the job.

WEATHER STATION OPERATIONS AND ADMINISTRATION. Tear and File Weather Data. Supervisors stated that approximately 50% of the apprentice weather observer's time is spent in taking weather data from teletypes and other sources and filing or posting it for the use of weather forecasters. During the first four weeks of their assignment, the apprentices required an excessive amount of supervision in order that supervisors could be assured that data was properly posted or filed. Each apprentice was deficient in his ability to correctly and promptly identify reports other than synoptic and airway reports. After the fourth week they all performed this task satisfactorily.

Use of Manuals. Performance reports and remarks made at the final critique indicated that apprentices are not trained adequately in the use of manuals. They did not know what manuals are available nor did they know how to find specific sources of technical information required for daily operations. Supervisors suggested that a lack of knowledge of the importance placed on manuals as operating aids could be one reason why attempts to instruct in their use had not been profitable.

By the end of the third week each apprentice required to use Federal Aviation Agency "Location Identifiers" and "Contractions" performed satisfactorily. The supervisors agreed with the course level of "1b" as established in the JTS for these documents and considered the instruction provided by the course as satisfactory.

It was the eighth week before any apprentice was rated as competent where information required in the AFCSM or AWSM 105-2 series was the determining factor. Supervisors considered a performance capability by apprentices in the use of the AFCSM and AWSM 105-2 series as a requirement for the satisfactory progression of apprentices and suggested that the course level training requirement of "a" be increased to "1b."

BLOCK IV, PRACTICAL EXERCISE. Each apprentice was familiar with the general routine of a weather observer as a result of the practical training received in Block IV. They were in accord, however, in stating that a considerable part of the time spent in this block

was unproductive from a training standpoint, e.g., many of the hours spent in producing maps and charts. Supervisors suggested that the unproductive time be utilized in additional practical exercises consisting of tasks requiring the use of manuals and publications, such as filing or posting various types of reports, preparation of tapes for transmission, etc.

SECTION 5 - SUMMARY AND ANALYSIS

WEATHER EQUIPMENT OPERATION

Apprentice knowledge and skills demonstrated with individual pieces of weather equipment followed the JTS closely, and the JTS levels and course were considered satisfactory with the following exceptions.

AN/CPS-9 ELECTRONIC STORM DETECTION EQUIPMENT. Performance reports and comments by supervisors indicated that the course did not produce apprentices trained on this equipment to the course levels established in the JTS. Supervisors suggested that the course level training requirement for operator familiarization of the AN/CPS-9 be deleted and in view of the increasing use of radars by the Air Weather Service that additional emphasis be placed on interpreting and coding weather observations as presented on PPI scopes. Apprentices and supervisors commented on the need for improved training aids in the course for teaching scope interpretation and coding, as apparently those being used were not effective.

REQUIREMENT FOR ACCURACY. Performance evaluations and comments by supervisors and apprentices indicated a need for more emphasis to be placed on accuracy in the operation and use of equipment and instruments. There was a general laxness on the part of apprentices in making operational checks to ensure that the equipment was operating correctly; they also showed a general lack of appreciation for accuracy in reading gauges, charts, meters, etc. Apprentices stated that, although accuracy was stressed in the classroom, uncorrected errors in readings and failures to stress the need for operational checks in practical exercises allowed them to form poor habits.

SURFACE OBSERVATIONS

By the fifth week apprentices were reporting surface observations reliably. Prior to that time, they required some assistance with estimating sky conditions and determining the intensity of precipitation. Performance reports indicated that the apprentices possessed a good understanding of sky estimation but required more practical work.

Supervisors and apprentices commented on the evidence of excessive training in the mathematical computation of sea-level pressure, altimeter, dew point, and relative humidity, as this task was seldom required. They suggested that since locally prepared tables and graphs or pressure reduction computers were used for these determinations, the preparation and use of the tables, graphs, or computers could be taught more economically through on-the-job training.

DECODE AND PLOT WEATHER DATA

Performance reports indicated overtraining in this area. Each of the apprentices performed the tasks of decoding and plotting weather data at the "3" level on his second assignment. It was suggested that approximately 30 hours of Block II could be deleted.

Errors involving omission of data through carelessness and a general untidiness of charts and maps appeared during the first six weeks of the evaluation. The apprentices attributed the carelessness and untidiness to what appeared to them to be emphasis on quantity and timeliness to the detriment of quality. Supervisors suggested that more emphasis be placed on quality of performance during the course.

WEATHER STATION OPERATIONS AND ADMINISTRATION

When first assigned, each apprentice was familiar with the general routines of a weather observer as a result of course training. Deficiencies were noted in their ability to identify weather bulletins for filing or posting purposes and in their knowledge of the availability and identification of specific sources of technical information required for daily operations.

Supervisors stated a requirement for course training to the "1b" level on AFCSM and AWSM 105-2 series as a requirement for the satisfactory progression of apprentice weather observers. Both supervisors and apprentices stated that some of the time spent in Block IV in producing maps and charts was unproductive from a training standpoint.

They suggested that additional practical exercises in which manuals and publications would be required would result in a better product.

SECTION 6 - CONCLUSIONS

1. ATC Course ABR25231 produces apprentices who are well trained to perform most of the duties of their specialty.

2. Apprentices were deficient in the following areas: (a) use of the AN/CPS-9 radar for storm detection, including scope interpretation and coding; (b) unreliability in making sky estimations; (c) careless in making operational checks of equipment, reading gauges and meters, and plotting all of the required information on weather maps and charts; and (d) knowledge of the availability and the identification of specific sources of technical information required for daily operations.

3. Evidences of excessive training were found in decoding and plotting weather data; in operator familiarization of the AN/CPS-9; and in computing sea-level pressure, altimeter, dew point, and relative humidity.

4. Changes in the course levels established in the JTS as indicated below would more closely align the course requirements with the job requirements.

9b(1)	Observes, records and encodes storms using radar observations.	Change from "1b" to "2b"
13j	Operates radar storm detection equipment.	Delete "1b"
12c(1)	Uses AFCSM 105-2 series.	Change from "a" to "1b"
12c(2)	Uses AWSM 105-2 series.	Change from "a" to "1b"

SECTION 7 - RECOMMENDATIONS

It is recommended that:

1. Consideration be given to amending the course level (Column B) of the JTS as indicated for the tasks listed in paragraph 4 of the Conclusions.
2. ATC determine the feasibility of reducing the course by at least one week by reducing the number of practical exercises devoted to plotting weather data; eliminating operator familiarization of the AN/CPS-9; and reducing the amount of time spent in making mathematical computations of sea-level pressure, altimeter setting, dew point, and relative humidity.
3. Instructors place more emphasis on the requirement for accuracy by students in the use of equipment, taking readings, and plotting weather data.
4. During Block IV of the course, more assignments be made which will require apprentices to research Air Weather Service manuals and publications.

APPENDIX I JOB DESCRIPTION

1 June 1963
Replaces 28 September 1961

APGC 23211
1 June 1963
Replaces 28 September 1961

ARMY AIR FORCE SPECIALTY
WEATHER OBSERVER

1. SPECIALTY SUMMARY

Observes and records weather elements; operates meteorological and electronic equipment; and performs organizational preventive maintenance.

2. DUTIES AND RESPONSIBILITIES

a. Observes and records weather elements: Measures, computes, and/or estimates sky conditions, type, height, and amount of clouds, visibilities, wind velocities, pressures, and temperatures by use of instruments and standard techniques. Operates electronic, aneroid, psychrometer, and electrometers. Operates radar storm detection equipment to include interpretation of scope presentations. Understands and may operate rain gauges, rockets, and airborne observation equipment. Maintains vigilant terminal weather watch and reports. Records and disseminates changes accurately and expeditiously. Encodes data for radio and teletype transmissions.

b. Plots weather maps, charts, and diagrams: Plots and interprets meteorological upper air and thermodynamic charts and diagrams to include land, ship, surface, aircraft reconnaissance, and upper air data. Obtains and plots late and off-time reports. Converts garbled teletype messages. Applies conversion factors to standardize plotting elements.

c. Summarizes observations to prepare historical weather records: Computes arithmetically average daily maximum and minimum temperatures, relative humidities, and monthly summaries of wind, height, and other data. Records computed data on standard forms. Posts weather data to include teletype data, pilot reports, radar reports, and severe weather warnings. Assembles and stores in station files weather data and charts received and prepared.

d. Performs organizational maintenance on weather instruments and electronic weather equipment: Cleans dirt from external surfaces and internal surfaces readily accessible. Lubricates and adjusts moving parts. Checks and adjusts bearings, screws to which does not disturb existing calibrations and adjustments. Replaces charts and graphs on recording equipment. Maintains operating logs and maintenance records. Operates teletype, facsimile, teleautograph, and duplicating equipment.

e. Supervises subordinate weather observer personnel: Evaluates performance and verifies accuracy of work accomplished by apprentice weather observers. Administers all phases of on-the-job training in this specialty to familiarize and improve performance of newly assigned personnel.

3. SPECIALTY QUALIFICATIONS

a. Education:

(1) Knowledge of origin of weather instruments and electronic weather equipment; operating principles of weather instruments and electronic weather equipment.

25-9

1 June 1963
Replaces 28 September 1961

APGC 23211
1 June 1963
Replaces 28 September 1961

(2) Completion of the Basic Weather Observer Course is desirable for those personnel assigned to duties involving the operation of rain gauges, rockets, or dropsonde.

d. Other:

(1) Physical profile serial 22211 is desirable for field or line assignment. Visual acuity correctable to 20/20 with glasses is mandatory.

(2) Physical qualifications for aircrew duties in accordance with class III medical standards is mandatory when required to participate in frequent aerial flights. Aircrew training in aerial observer methods is mandatory for each duty.

(3) Normal color vision as defined in AFM 100-1 is mandatory.

4. SPECIALTY DATA

a. Grade Symbol: Airman second class through staff sergeant.

b. Source Job (D, O, T): Weather Observer 0-66.08

APPENDIX II JOB TRAINING STANDARD

JTS 25231/51/71
 should be addressed direct to Headquarters
 ATC (ATTDC), Randolph AFB, Texas.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

OFFICIAL:
 J. L. TAJER
 Colonel, USAF
 Director of Administrative Services

1 Attachment
 Qualitative Requirements

THOMAS D. WHITE
 Chief of Staff

JTS 25231/51/71
 DEPARTMENT OF THE AIR FORCE
 WASHINGTON, 24 March 1961

WEATHER OBSERVER AND

WEATHER OBSERVER TECHNICIAN

1. Purpose. This JTS, prepared IAW AFE 50-28:
 - a. States the knowledge or tasks necessary for an airman to perform duties in the Weather Observer position of the Airman Weather Observer Field (Column A). The knowledge and tasks are based on the Specialty Descriptions outlined in AFM 35-1C, 1 August 1960.
 - b. Shows the proficiency attained in Course Number ABE25231 as outlined in AFM 50-4, USAF Training Prospectus (Column B).
 - c. Indicates the proficiency recommended for each job element for qualification at the five level AFSC (Column C).
 - d. Indicates the proficiency recommended for each job element for qualification at the five level AFSC as provided by OJT Package JF25231 (Column D). NOTE: Additional training for job elements, marked with an asterisk within Column (A) for Paragraphs 10 and 13 of this standard, is required by a limited number of personnel and will be given in Course ABE25231-1, Rawlinsville Operation, the proficiency attained in Course Number ABE25271 as outlined in the Prospectus (Column E).
 - f. Indicates the proficiency recommended for each job element for qualification at the seven level AFSC as provided by OJT Package JAE25271 (Column F). Training for the limited number of personnel requiring Paragraph 14 of this standard will be given under the provisions of AFE 50-9.
2. Qualitative Requirements. Attachment 1 contains the listing of knowledge and tasks referenced in paragraph 1. The numbers and letters appearing in appropriate columns of the Proficiency Level and Progress Record are the scale values of the code key shown in Figure 1.
3. Applying the JTS to AF Form 823. The Job Training Standard is to be entered in AF Form 823, Formal On-the-Job Training Record, to provide a convenient record of on-the-job training completed.
4. Recommendations. Comments and recommendations are invited concerning quality of ATC training and graduates. Use this training standard as frame of reference to delineate problem areas. Correspondence

*This Standard supersedes JTS 25231/51/71, 24 August 1958.

OPT: ATC

DISTRIBUTION: F

1

JTS 25231/51/71

should be addressed direct to Headquarters
 ATC (ATTDC), Randolph AFB, Texas.

BY ORDER OF THE SECRETARY OF THE AIR FORCE:

OFFICIAL:
 J. L. TAJER
 Colonel, USAF
 Director of Administrative Services

1 Attachment
 Qualitative Requirements

THOMAS D. WHITE
 Chief of Staff

2

JTS 26231/51/71

CODE KEY		
Scale Value	Performance Definition	Knowledge Definition
1	Extremely Limited. Requires detailed guidance and close supervision in using current procedures and techniques.	Introductory Knowledge. Possesses knowledge of fundamentals and/or facts.
2	Partially Proficient. Requires some guidance and supervision, mainly on involved and complicated steps of the operation.	Basic Understanding. Possesses an understanding of basic principles and procedures.
3	Competent. Can perform "on the spot" when some problems are encountered; only a general check of the work is required by the supervisor.	Working Knowledge. Thoroughly understands the operation of principles and procedures in operational situations.
4	Highly Skilled. Performs skillfully and efficiently; considered capable of supervising others and applying current procedures and techniques to new and related tasks.	
No training offered because of lack of equipment or facilities: X		
No training required at this level: —		
The code key for a job element (knowledge or performance task) consists of a number or letter scale value, or an appropriate number/letter combination thereof.		

Figure 1.

QUALITATIVE REQUIREMENTS

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(A)	PROFICIENCY LEVEL AND PERFORMANCE RECORD									
	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
1. ORGANIZATION AND FUNCTION OF AIR WEATHER SERVICES										
a. Knows the organizational structure of Air Weather Service										
b. Knows the organization and function of weather departments and their relationship to the Air Weather Service										
c. Knows the duties of Weather Observer										
d. Knows the duties of Weather Observer Technician										
e. Knows the duties of Weather Observer Supervisor										
f. Knows the duties of Weather Technician and Weather Representative										
g. Knows the duties of Weather Representative and Weather Representative Supervisor										
2. GROUND SAFETY PRACTICES										
a. Understands general ground safety practices										
b. Performs general housekeeping and fire prevention practices										
c. Understands safety procedures in connection with use of electrical and chemical equipment										
d. Can apply first aid procedures for burns										
e. Understands handling procedures for compressed gas										
3. ELEMENTS OF METEOROLOGY AND MATHEMATICS										
a. Applies knowledge of elementary Meteorology										
b. Applies elementary mathematics such as arithmetic										
c. Uses meteorological tables such as barometric tables										
4. WEATHER EQUIPMENT MAINTENANCE										
a. Performs organizational preventive maintenance such as										
(1) Cleaning										
(2) Lubrication										
(3) Adjustments that can be made without disassembly or disturbing calibration										
b. Uses APT and APTF maintenance forms										
c. Has knowledge of and participation in USAF Product Improvement Program										

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(A)	PROFICIENCY LEVEL AND PROGRAM RECORD					
	(B)	(C)	(D)	(E)	(F)	(G)
REQUIRED KNOWLEDGE OR TASK	APC 63	APC 63	APC 63	APC 63	APC 63	APC 63
6d. Install and/or replace minor meteorological equipment						
7. ON-THE-JOB TRAINING						
a. Use knowledge of OJT requirements						
b. Conduct OJT training						
c. Plan, conduct and supervise OJT training						
d. Maintain OJT training records						
e. Maintain OJT						
8. SUPERVISION KEEPER						
a. Assign and supervise work						
b. Estimate accuracy, completeness and timeliness of work						
c. Explain and demonstrate policies and directives						
d. Institute subordinates						
9. WEATHER STATION ADMINISTRATION						
a. Apply the principles of sound management						
b. Analyze work effectiveness to determine methods of improvement						
c. Prepare and submit and dispose of weather reports						
d. Prepare correspondence						
e. Maintain correspondence						
f. Maintain and organize reference materials						
g. Use communications facilities (telephone, radio, etc.)						
h. Coordinate work when necessary with other agencies such as:						
(1) Base Operations						
(2) ALCZ						
(3) Weather Reporting Station						
(4) Weather Forecasting Station						
(5) Supply						
(6) Base Support Unit						
(7) Communications and base emergency personnel						
h. Understand and maintain of classified security information						
i. Maintain records of pertinent information such as:						
(1) APTS Manuals and directives						
(2) WFLAN Manuals						
(3) Technical Orders						

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(A)	PROFICIENCY LEVEL AND PROGRAM RECORD					
	(B)	(C)	(D)	(E)	(F)	(G)
REQUIRED KNOWLEDGE OR TASK	APC 63	APC 63	APC 63	APC 63	APC 63	APC 63
7.(4) AWS Wing, Group, Squadron and Detachment publications						
(5) AP Manuals						
8. WEATHER STATION SUPPLY						
a. Understand supply procedures, fund-ing, classification and identification of items						
b. Use supply catalogs						
c. Prepare requisitions						
d. Receive materials						
e. Inventory						
f. Keep inventory						
9. OBSERVER RECORDS AND ENCODERS						
WEATHER ELEMENTS						
a. Surface Observations						
(1) Sky Conditions and Cloud Forms						
(2) Present Weather						
(3) Visibility and Obstructions						
(4) Wind						
(5) Temperature and Humidity						
(6) Pressure						
(7) Precipitation						
(8) Type of observations						
(9) Instrumentation						
(10) Data preparation for transmission						
b. Electronic Storm Detection Observations						
(1) Radar						
(2) Meteor						
10. UPPER AIR OBSERVATIONS						
a. Balloon						
(1) Perform flight procedures						
(2) Evaluate Rawinsonde Report						
(3) Perform chart evaluation						
(4) Complete winds aloft						
(5) Plot Balloon Observations						
b. Dropsonde Observations						
(1) Perform flight procedures						
(2) Complete data						
(3) Complete data						
11. ENDSIDE AND PLOTS WEATHER DATA ON MAPS AND CHARTS ROCK						
a. Surface synoptic charts						
b. Constant pressure charts						
c. Winds aloft charts						

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INITIAL DISTRIBUTION

1 Wpns Sys Eval Gp
1 Deputy IG for Insp (AFIPA)
5 Hq USAF (AFPTR-T)
1 Hq USAF (AFORQ-OT)
1 AFSC (SCPT)
1 AFLC
1 ADC (ADPDA)
1 TAC (DPAP)
1 SAC (DPATW)
1 AFCS (PRT)
8 ATC (ATTDC)
5 Amarillo Tech Tng Cen
5 Sheppard Tech Tng Cen
5 Keesler Tech Tng Cen
5 Chanute Tech Tng Cen
5 Lowry Tech Tng Cen
5 Lackland Mil Tng Cen
5 Gunter Med Svc Sch
5 3505 Tech Tng Gp
3 4 Wea Gp
2 MATS (MAOTN)
1 AU (AUL-9764)
15 ASTIA (TIPCR)
APGC
6 ATTEG
1 PGAPI
3 PGEH
5 Det 10 - 4 Wea Gp

<p>Air Proving Ground Center, Eglin Air Force Base, Florida Rpt. No. AFPG-TDR-63-26, PERFORMANCE EVALUATION OF APPRENTICE WEATHER OBSERVERS, Graduates of ATC Course ABR25231, Final Report, April 1963, 17p. Unclassified Report</p> <p>This evaluation was conducted to determine the ability of apprentice weather observers graduated from ATC Course ABR25231 to perform the duties of their specialty. Apprentices graduated from this course are well prepared to meet the requirements of the Job Training Standard and most of the job requirements. The recommendations include that instructors place more emphasis on the requirement for accuracy in the use of equipment, and in taking readings and plotting weather data; and that during Block IV of the course (a period devoted to practical exercises in the operation of a weather station) more assignments be made which will require apprentices to research Air Weather Service manuals and publications. The evaluation indicated that the course would be more closely aligned with the job requirements if the course levels established in the Job Training Standard for the following tasks were increased: (a) observes, records, and encodes storms using radar observations; (b) use AFCSM 105-2 series; and (c) use AWSM 105-2 series. As a result of indications of excessive or unproductive training, an investigation was recommended to determine the feasibility of reducing the course in the following areas: (a) practical exercises devoted to plotting weather data; (b) operator familiarization of the AN/CPS-9 radar; and (c) mathematical computations of sea-level pressure, altimeter, dew point and relative humidity.</p>	<p>UNCLASSIFIED</p> <ol style="list-style-type: none"> 1. Training 2. Meteorological instruments 3. Weather stations 4. ABR25231 1. AFPG Project 00340-34 <p>II. Pruitt, Earl F. III. In ASTIA collection</p>	<p>Air Proving Ground Center, Eglin Air Force Base, Florida Rpt. No. AFPG-TDR-63-26, PERFORMANCE EVALUATION OF APPRENTICE WEATHER OBSERVERS, Graduates of ATC Course ABR25231, Final Report, April 1963, 17p. Unclassified Report</p> <p>This evaluation was conducted to determine the ability of apprentice weather observers graduated from ATC Course ABR25231 to perform the duties of their specialty. Apprentices graduated from this course are well prepared to meet the requirements of the Job Training Standard and most of the job requirements. The recommendations include that instructors place more emphasis on the requirement for accuracy in the use of equipment, and in taking readings and plotting weather data; and that during Block IV of the course (a period devoted to practical exercises in the operation of a weather station) more assignments be made which will require apprentices to research Air Weather Service manuals and publications. The evaluation indicated that the course would be more closely aligned with the job requirements if the course levels established in the Job Training Standard for the following tasks were increased: (a) observes, records, and encodes storms using radar observations; (b) use AFCSM 105-2 series; and (c) use AWSM 105-2 series. As a result of indications of excessive or unproductive training, an investigation was recommended to determine the feasibility of reducing the course in the following areas: (a) practical exercises devoted to plotting weather data; (b) operator familiarization of the AN/CPS-9 radar; and (c) mathematical computations of sea-level pressure, altimeter, dew point and relative humidity.</p>	<p>UNCLASSIFIED</p> <ol style="list-style-type: none"> 1. Training 2. Meteorological instruments 3. Weather stations 4. ABR25231 1. AFPG Project 00340-34 <p>II. Pruitt, Earl F. III. In ASTIA collection</p>
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